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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

CIRIC, LJILJANA V

ART UNIT	PAPER NUMBER
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3743

DATE MAILED: 01/06/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.
09/707,413

Applicant(s)
Subramanian et al.

Examiner
Ljiljana V. Ciric *LC*

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on Oct 16, 2002
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above, claim(s) 9-20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 and 21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on Oct 16, 2002 is/are a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☒ The proposed drawing correction filed on Oct 16, 2002 is: a) ☒ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
*See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____ 6) ☐ Other:

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DETAILED ACTION

Response to Amendment

1. This Office action is in response to the amendment and arguments filed on October 16, 2002.
2. Claims 1 through 21 are in the application, of which claims 9 through 20 remain withdrawn from consideration as being drawn to non-elected inventions and of which claims 1 through 8 and 21 have been amended.

Response to Arguments

3. Applicant's amendment and arguments filed on October 16, 2002 have been fully considered, and have obviated the previously cited objections to the drawings, the specification, and the claims, as well as the rejection of claim 8 under 35 U.S.C. 112, first paragraph.

With regard to the remaining rejections previously cited by the examiner, applicant's arguments filed on October 16, 2002, while also fully considered, have not been found to be persuasive.

For example, applicant argues against the examiner's previously cited rejection of claim 21 under 35 U.S.C. 112, first paragraph and second paragraph, by noting that "Support for claim 21 can be found at page 5, lines 5-8 and in Figure 1a. A first sub-system corresponds to first subsystem 20, and a second subsystem corresponds to second subsystem 20 [sic]." While showing that there is antecedent basis for the claim terminology in the originally filed

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specification, applicant's remarks have failed to address the issue relating to compliance with 35 U.S.C. 112 previously raised by the examiner, namely that while claim 21 recites a first sub-system and a second sub-system, the originally filed specification and drawings fail to *fully disclose or describe which particular elements are encompassed by either the first sub-system or the second sub-system, and otherwise fail to define which elements and/or which structure corresponds to each of these sub-systems* as required by 35 U.S.C. 112, first paragraph. For example, the originally filed disclosure [page 5, lines 6-8] defines the first sub-system in terms of a first sub-system, and the second sub-system in terms of a second sub-system. These circular definitions, which attempt to define an undefined term by using the same undefined term, are analogous to attempting to, for example, define "a system" as comprising "a system" or "a box" as "a box" or "a fruit" as "a fruit", thus failing to meet the requirements of 35 U.S.C. 112, either first paragraph or second paragraph. Meanwhile, corresponding Figure 1a essentially depicts each of these subsystems schematically, again without showing any details; the depictions of these subsystems as blank or "black" boxes generally fail to shed much additional light on what is encompassed by either the first sub-system or the second sub-system as claimed, thus further rendering applicant's arguments nonpersuasive.

While applicant argues that the claims have been amended to overcome the examiner's rejections thereof under 35 U.S.C. 112, second paragraph, it is hereby respectfully noted by the examiner that the claims have not been amended so as to be in full compliance with 35 U.S.C. 112, second paragraph. Applicant, for example, amended claim 1 to replace "one or

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more” with “at least one”, which are generally synonymous and equally clear, but has failed to overcome the examiner’s objection to the limitations beginning with “*adapted to receive...*” which still remain in the claim and still render the intended scope of protection of the claim indefinite. Applicant has also, notwithstanding his arguments to the contrary, failed to amend claim 1 to more clearly recite the structural cooperative relationships between the various elements as required, except as noted below in the paragraph relating to the restated rejection of the claims under 35 U.S.C. 112, second paragraph.

As a preface to the following traversal of applicant’s arguments with regard to the rejection of the claims under 35 U.S.C. 102(b) as being anticipated by *Sikes*, the examiner hereby notes that the claims in a pending application should be given their *broadest* reasonable interpretation. See In re Pearson, 181 USPQ 641 (CCPA 1974).

In response to applicant's argument that the *Sikes* reference fails to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., “a chamber adapted to receive at least one semiconductor substrate in fluid communication with a fluid reservoir, as recited in claim 1, and a second sub-system for contacting coated semiconductor substrates with the cooled fluid, the second sub-system being in fluid communication with the first subsystem as recited in claim 21”) are not recited in the rejected claims. For example, while reciting a coupling with an intended use in conjunction with a fluid reservoir, claim 1 (either as originally filed or as amended) fails to positively recite either a fluid reservoir or a chamber in fluid communication with a fluid reservoir. Similarly, rejected claim 21 as originally filed fails to recite

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the second sub-system being in fluid communication with the first sub-system. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Regardless, applicant's arguments with regard to claim 1 are furthermore not clearly understood since *Sikes* very clearly shows a chamber 12 in fluid communication with fluid or gas supply tanks 14, each of the tanks 14 reading on a fluid reservoir as claimed.

Applicant's thus arguments thus also do not comply with 37 CFR 1.111(c) because they do not clearly point out the patentable novelty which he or she thinks the claims present in view of the state of the art disclosed by the references cited or the objections made. Further, they do not show how the amendments avoid such references or objections.

Finally, in response to applicant's argument that *Sikes* fails to disclose "a second sub-system for contacting coated semiconductor substrates with cooled fluid, the second sub-system being in fluid communication with the first subsystem, as recited in claim 21," but rather that *Sikes* "merely discloses a system for cooling power supplies employed in semiconductor production processes via a pair of conduits between the power supply and a chiller," applicant is additionally respectfully reminded that claims directed to apparatus must be distinguished from the prior art in terms of structure rather than function. *In re Danly*, 263 F.2d 844, 847, 120 USPQ 528, 531 (CCPA 1959). Also, "[A]pparatus claims cover what a device *is*, not what a device *does*. (Emphasis in original). *Hewlett-Packard Co. v. Bausch & Lomb Inc.*, 909 F.2d 1464, 1469 15 USPQ2d 1525, 1528 (Fed. Cir. 1990). Thus, as noted by the examiner in the previously recited

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rejection with regard to claim 21, chiller 32 as disclosed by *Sikes* reads broadly on the first sub-system as claimed, whereas the remainder of the system as disclosed by *Sikes* reads broadly on the second sub-system as claimed. First and second conduits 36 and 34 of *Sikes* very clearly provide fluid communication between the two sub-systems.

Drawings

4. The proposed drawing correction and/or the proposed substitute sheets of drawings, filed on October 16, 2002 have been approved.

5. The corrected or substitute drawings were received on October 16, 2002. These drawings are hereby approved.

Specification

6. Receipt and entry of the amended abstract filed on October 16, 2002 is hereby acknowledged.

Claim Rejections - 35 U.S.C. § 112

7. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

8. Claim 21 is rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Claim 21 recites a first sub-system and a second sub-system, yet the originally

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filed specification and drawings fail to fully disclose or describe which particular elements are encompassed by either the first sub-system or the second sub-system, and otherwise fail to define which elements and/or which structure corresponds to each of these sub-systems. For example, the originally filed disclosure [page 5, lines 6-8] defines the first sub-system in terms of a first sub-system, and the second sub-system in terms of a second sub-system. These circular definitions are analogous to attempting to define a fruit as “a fruit of a plant”. Meanwhile, corresponding Figure 1a essentially depicts each of these subsystems schematically, again without showing any significant details; the depictions of these subsystems as blank or “black” boxes fail to shed any additional light on what is encompassed by each of these subsystems.

9. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

10. Claims 1 through 8 and 21 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

It is not clear what particular structure, if any, corresponds to the limitation “*adapted to receive* at least one coated semiconductor substrate” [claim 1, line 2], thereby rendering indefinite the scope of protection sought.

Claims 1 through 8 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The

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omitted structural cooperative relationships are, for example: the structural cooperative relationships among the chamber, the coupling, the reservoir, the inlet valve, and the controller as cited in claim 1. Even as amended, claim 1 positively recites only the structural cooperative relationship between the inlet valve and the coupling.

There is insufficient antecedent basis in the claims for the following limitations, for example: "the flow of fluid" [claim 5, lines 1-2]--note that the fluid flow is not inherent--recommend replacing with "a flow of fluid"; "the fluid" [claim 7, line 1; claim 8, line 1]--recommend replacing "the fluid" with "fluid"; and, "the substrates" [claim 7, line 2].

As claimed, it is not clear which particular structure and/or which particular elements correspond to the first sub-system and to the second sub-system as cited in claim 21, thus rendering the claim indefinite with regard to the scope of protection sought.

The above is an indicative, but not necessarily an exhaustive, list of 35 U.S.C. 112, second paragraph, problems. Applicant is therefore advised to carefully review all of the claims for additional problems. Correction is required of all of the 35 U.S.C. 112, second paragraph problems, whether or not these were particularly pointed out above.

Claim Rejections - 35 U.S.C. § 102

11. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

Note: The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

12. As best can be understood in view of the indefiniteness of the claims, claims 1 through 4, 7, and 8 are rejected under 35 U.S.C. 102(e) as being anticipated by *Nishizawa et al.* (filed March 1, 1995).

Nishizawa et al. [especially Figures 1 and 7] discloses a system essentially as claimed, including: a chamber or vessel 1 adapted to receive at least one semiconductor substrate 12; couplings or nozzles 4 and 5 for placing the chamber or vessel 1 in fluid communication with an inherent gas supply source for gases 8 and 9, which source reads broadly on the fluid reservoir as cited in claim 2; inlet valves 6 and 7 attached to the nozzles or couplings 4 and 5; and, a controller 18 [see Figure 1] for controlling inlet valves 6 and 7. Shroud 28 is disposed in the flow path of the fluid flowing from nozzles 4 and 5 into chamber or vessel 1 and thus reads broadly on the baffle as cited in claim 8.

The reference thus reads on the claims.

13. Alternately for claims 1 through 4, and as best can be understood in view of the indefiniteness of the claims, claims 1 through 6 are rejected under 35 U.S.C. 102(b) as being anticipated by *Kazama et al.*

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Kazama et al. discloses a system essentially as claimed, including: a chamber 3 adapted to receive at least one semiconductor substrate or wafer W; an inlet valve 29 attached to a coupling and to a fluid reservoir 30 (or, alternately, an inlet valve 56 attached to a coupling and to a fluid reservoir 58, for example); an outlet valve 53 or 59; and, a controller or CPU 40 operatively connected to each of the previously cited inlet and outlet valves.

The reference thus reads on the claims.

14. Alternately for claims 1 through 4 and 7, and as best can be understood in view of the indefiniteness of the claims, claims 1 through 4 and 7 are rejected under 35 U.S.C. 102(b) as being anticipated by *Krueger*.

Krueger discloses a system essentially as claimed, including: a chamber 12 adapted to receive at least one semiconductor substrate or wafer 20; various couplings attached to inlet valves 78 or 42; a fluid reservoir 46; and, a controller 80 operatively connected to each of inlet valves 78 and 42.

The reference thus reads on the claims.

15. Alternately for claims 1 through 4, and as best can be understood in view of the indefiniteness of the claims, claims 1 through 4 and 21 are rejected under 35 U.S.C. 102(b) as being anticipated by *Sikes*.

Sikes discloses a system for cooling semiconductor processing devices essentially as claimed, including: a chamber 12 adapted to receive at least one semiconductor substrate or wafer 22; gas supply tanks 14, any one of which reads on the fluid reservoir as claimed; at least

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one inlet valve attached (directly or indirectly) to a coupling that are inherent to the gas control panel 18 and associated conduit structures; and, a controller 20 operatively connected to the gas control panel 18. Chiller 32 reads on the first sub-system of claim 21, whereas the remainder of the system reads on the second sub-system as claimed; conduits 34 and 36 place the chiller 32 or the first sub-system in fluid communication with the second sub-system. Little or no patentable weight is given to various functional language relating to intended use in the apparatus claims.

The reference thus reads on the claims.

Conclusion

16. The following additional prior art made of record and not relied upon is considered pertinent to applicant's disclosure. *Moslehi et al.*, *White*, *Herchen*, *Fishkin et al.*, *Westmoreland et al.*, *Kholodenko et al.*, and *Carter et al.* (filed June 16, 1998) each discloses a substrate processing chamber with associated coolant and/or gas supply systems.

17. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be

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calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

18. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ljiljana (Lil) V. Ciric, whose telephone number is (703) 308-3925. While she works a flexible schedule that varies from day to day and from week to week, Examiner Ciric may generally be reached at the Office during the work week between the hours of 10 a.m. and 6 p.m. ET.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Henry Bennett, can be reached on (703) 308-0101. The fax phone number is (703) 305-3463.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0861.

lvc

January 4, 2003



LJILJANA V. CIRIC
PRIMARY EXAMINER
ART UNIT 3743